

WHAT IS CLAIMED IS:

1. A narrow profile lightweight urethane in-line skate wheel comprising:
a hub formed with a cylindrical bearing housing for mounting on bearings and including a radially outwardly projecting support disk;
annular support flanges projecting axially outwardly on opposite sides of said disk to form respective radially outwardly facing load support surfaces and cooperating to a predetermined combined axial width;
an annular urethane tire body mounted on said load bearing flanges and encasing the axially opposite sides of the radially outward portion of said disk, said tire body being configured with an annular tread section having oppositely disposed tread walls sloping axially outwardly and radially inwardly from a major radial diameter to a maximum axial width greater than said predetermined axial width; and
said tire body further including a narrowing body section interposed between said tread section and said load bearing surface and configured with opposite narrowing walls sloping axially and radially inwardly toward one another from said maximum axial thickness to the opposite ends of the respective said flanges and configured with radially inwardly facing beads abutting the respective said support surfaces.

2. The wheel of claim 1 wherein:

said opposite narrowing walls curve radially inwardly and axially inwardly toward one another.

3. The wheel of claim 1 wherein:

said tire body is formed with said maximum axial width less than .965 inches.

4. The wheel of claim 1 wherein:

said tire body is formed with said maximum axial width substantially to .850 inches.

5. The wheel of claim 1 wherein:

said tire body is formed with said maximum axial width no greater than to .900 inches.

6. The wheel of claim 1 wherein:

said bearing housing has an axial width greater than said predetermined load bearing flange axial width.

7. The wheel of claim 1 wherein:

said tire body is molded on said hub.

8. The wheel of claim 1 wherein:

said support disk projects radially outwardly a distance from said load bearing surface to project at least to the radial center of said tire body.

9. The wheel of claim 1 wherein:

said tire body section is oval in transverse cross section.

10. The wheel of claim 1 wherein:

said tire body is Christmas tree bulb shaped in transverse cross section.

11. The wheel of claim 1 wherein:

the said predetermined combined axial width is .560 inches.

12. A lightweight narrow in-line roller skate wheel comprising:

a hub constructed with a bearing housing and including a radially projecting annular support disk;

a pair of annular load bearing flanges projecting axially on the opposite sides of said disk and configured with respective radially outwardly facing load support surfaces;

an annular urethane tire body molded about the radially outer extent of said support disk and nesting against and bonded to said load bearing surface, said tire body being formed in its radially outer extent with an oval in cross section annular tread section having a maximum axial width greater than the axial width of said load bearing flange, said tire body further including a narrowing body section intermediate said tread section and said load bearing flange and formed with opposite side walls curving radially and axially inwardly toward one another to join the opposite axial ends of the respective said load bearing flanges.

13. A narrow lightweight in-line roller skate wheel comprising:

a hub including an annular housing and a centrally disposed radial disk, said hub including annular support flanges on the opposite sides of said disk cooperating to form a combined overall axial length no greater than 0.560 inches;

a urethane tire body formed about the radially outer extent of said disk, configured with a tread crown and sloped side walls sloping radially inwardly and axially outwardly from said tread crown to a maximum width of 0.850 inches, said side walls then sloping radially and axially inwardly toward one another to terminate at the respective axial ends of the respective said flanges, said body being further formed with radially inwardly facing bearing surfaces nested on the respective said support flanges.

14. A narrow lightweight in-line roller skate wheel comprising:

a hub including an annular housing and radial support disk;

an annular urethane tire body on said disk, having a maximum axial width less than 0.965 inches and including narrowing means having opposite side walls sloping radially and axially inwardly toward one another to terminate in a narrow width less than said maximum axial width;

said hub including an annular support means mounted on said disk and supporting said tire body.

15. The method of manufacturing an in-line roller skate wheel including the following steps:

selecting a hub with an annular bearing housing having a pair of annular load bearing flanges of a combined predetermined axial width;

selecting a mold having upper and lower mold sections, said lower mold section configured with an annular mold cavity section defining a central lower hub cavity section and an outer lower tire body cavity section, said tire cavity section including a bottom wall extending radially outwardly from said hub section and formed with a downwardly and outwardly sloped narrowing section extending to a bottom maximum width ring and then turning radially outwardly to curve upwardly and radially outwardly to a juncture surface, said upper mold section being constructed to mate with said lower mold section and formed with a downwardly

opening tire body cavity section having a wall aligned with said terminus and curving upwardly and radially inwardly to a top maximum width ring spaced from said bottom maximum width ring to form a maximum body width greater than said predetermined load bearing flange axial width and projecting radially inwardly to terminate in an annular sprue wall;

placing said hub in said lower hub cavity section ;

positioning said upper mold section on said lower mold section;

selecting a back pin and engaging it with said hub to position an annular back pin sculpture shoulder angling upwardly and axially outwardly from said load bearing flange to terminate in an annular sprue wall spaced annularly from said first sprue wall to form an annular sprue inlet;

introducing prepolymers, curatives and pigment additives through said sprue inlet to fill said body cavity and surround and bond to said support disk to cooperate in forming a wheel;

removing said back pin and said upper mold section; and

removing and trimming said wheel.

16. The method as set forth in claim 15 wherein:

said back pin is selected having an annular downwardly opening cavity for nesting therein of the upper axial side of said hub.

17. The method as set forth in claim 15 wherein:

said back pin is selected with a sealing lip disposed radially inwardly of said sculpture wall and configured to sealingly engage said load bearing flange.

18. The method of claim 15 wherein:

said hub is selected of first and second sections having first and second joint sections and includes the steps of:

joining said first and second sections before placing said hub in said mold.

19. The method of claim 15 wherein:

the step of selecting said hub includes selecting said first and second sections of the type cooperating to, when joined, form an annular shell disposed concentrically thereabout to define a lightening cavity; and

the step of placing said hub in said mold includes placing said annular shell in said tire body section.

20. An annular mold for molding a sculptured in-line roller skate wheel tire body to a wheel hub having an annular bearing housing and radially outwardly projecting annular mounting disk formed medially with an annular load bearing flange having a predetermined axial width and terminating in, when said hub is laid on its side, respective lower and upper annular edges;

said annular mold including upper and lower mold sections connected together and severable along a mold mating surface;

said lower mold section being configured with a lower mold cavity including an annular hub mold section for receiving one axial side of said hub and configured with a radially exterior wall terminating at a top edge in an annular sealing lip configured to engage said lower edge of said load bearing flange, said lower mold section being further formed with a lower mold section tire body cavity circumscribing said lower mold hub section cavity and formed with an annular bottom wall curving downwardly and outwardly from said sealing lip to then turn and project radially outwardly and curve upwardly and radially outwardly to terminate in an annular terminus at said mating surface;

said upper mold section being configured with an upper section mold cavity cooperating with said hub mold section and said tire mold cavity and having an upper wall curving upwardly and axially inwardly from said terminus to terminate in an annular sprue wall edge; and

a back pin constructed with a downwardly opening hub cavity for, when said hub is in said lower mold cavity, receipt of the upper portion of said hub and configured with an annular sealing lip for sealingly engaging said upper edge of said load bearing flange, said back pin further including a sculpture cavity surface angling upwardly and outwardly from said sealing lip to terminate in a back pin sprue wall spaced radially inwardly from said first sprue edge to form a sprue opening for receipt of prepolymers, curatives and pigment additives.

21. A mold for molding a soft urethane tire body to a hard urethane hub to form a urethane wheel configured with sculptured said tire body section having axially opposite sides angling axially outwardly from a mounting flange on said hub to angle axially and radially outwardly and to then curve radially outwardly and axially inwardly toward one another forming a tread surface, said mold apparatus comprising:

a lower mold section having a lower hub cavity for nesting therein of said hub to position said hub's radial plane in a generally horizontal plane;

said lower hub section further including a lower tire body cavity concentric about said lower hub cavity configured to form one side wall of said tire body; and

an annular upper mold section and central back pin configured to cooperate in forming an upper mold tire body cavity section cooperating with said lower hub cavity and tire body cavity to form the shape of said tire body about said hub, said back pin being configured to engage the top side of said hub and formed with a downwardly and outwardly facing sculpture surface to cooperate in forming the second side wall of said tire body.

22. The wheel of claim 1 wherein:

said tire body is formed with an annular lightening cavity.

23. The wheel of claim 1 that includes:

an annular shell embedded in said tire body and formed with an annular lightening cavity.

24. The wheel of claim 1 that includes:

an annular lightening shell mounted on said support disk, embedded in said tire body and formed with a lightening cavity.

25. The wheel of claim 1 wherein:

said hub is formed with first and second axial sections disposed on opposite sides of a central radial plane through said hub, said hub further including a joint for connecting said axial sections together.

26. The wheel of claim 2 wherein:

said joint includes male and female joint sections.

27. The wheel of claim 26 wherein:

said joint includes an adhesive.

28. The wheel of claim 25 wherein:

said first and second axial sections are formed with first and second annular support disk sections joined together to form said support disk and respective first and second annular shell sections joined together to form an annular shell defining a lightening shell configured with an annular lightening cavity.

29. The wheel of claim 24 wherein:

said lightening shell includes said first and second annular shell sections joined together by respective annular joints.

30. The wheel of claim 29 wherein:

said joints are formed by an interference fit of annular tongue and groove structures formed in said annular shell sections to cooperate in forming the respective said joints in an interlocked mechanical construction.

31. The wheel of claim 1 wherein:

said hub is formed with a first hub section including said cylindrical bearing housing, said radially outwardly projecting support disk, said annular load bearing flanges, and an annular shell section disposed on one axial side and formed radially outward from said support disk;

said hub is further formed with a second section consisting of an annular shell section radially concentric with the annular half shell section of the said first hub section and disposed on the opposite side of a central radial plane through said hub;

said hub includes a joint for connecting said annular shell sections together; and

said annular shell sections are joined together to form an annular shell defining a lightening shell configured with an annular lightening cavity.

32. The wheel of claim 31 wherein:

said joint includes male and female joint sections.

33. The wheel of claim 31 wherein:

said joint includes an adhesive.

34. The wheel of claim 31 wherein:

said joint is formed by an interference fit of annular tongue and groove structures formed in said annular shell sections which cooperate to form said joint in an interlocked mechanical construction.

35. A narrow profile lightweight urethane in-line skate wheel comprising:

an annular urethane tire body formed with a radially distal narrow tread crown and having side walls tapering radially inwardly and axially outwardly away from one another to a major thickness and then tapering radially and axially inwardly toward one another to terminate in respective radially inwardly facing beads; and

hub means including a radially outwardly projecting support disk formed with annular support flange means having radially outwardly facing tire body bead receiving means engaging said tire body bead means.

36. The wheel of claim 35 wherein:

said hub means is constructed of first and second sections joined together by joint means.

37. A urethane in-line skate wheel comprising:

a hub fitting forming a bearing housing, a concentric lightening shell spaced radially therefrom and an annular disk interposed between said housing and shell;

said hub fitting being formed by first and second annular hub sections configured with respective first and second half tubes cooperating to form said shell and terminating in respective confronting concentric edges, said edges being formed with respective interfitting tongues and grooves configured to fit frictionally together in interlocking relationship; and

a urethane tire body formed about said shell and disk.

38. The tire set forth in claim 37 wherein:

said tire body has a maximum width less than .965 inches and is formed with the opposite side walls sloping axially and radially inwardly toward one another from said maximum width to form a radially inwardly facing support surface of a predetermined axial width less than said maximum width; and

said hub fitting includes annular flanges carried on the opposite sides of said disk, intermediate said housing and shell and having a combined axial width equal to said predetermined axial width.

39. The wheel set forth in claim 37 wherein:

the respective said edges of said second tubes are constructed with respective annular retainers; and

the respective first tubes are constructed with said tongues configured to, when said tubes are joined together, be retained frictionally behind the respective said retainers.

40. The wheel as set forth in claim 39 wherein:

the respective said tongues are configured to be, upon joinder of said tubes, flexed relative to respective said retainers to ride over the respective said retainers and be mechanically retained there behind in the respective said grooves.